

REMARKS

This Response serves as the submission accompanying Applicants' Request for Continued Examination (RCE) filed pursuant to 37 C.F.R. §1.114. By final Office Action dated #13 October 17, 2002, pending claims 9-57 stood rejected, reconsideration of which is respectfully requested in view of the following remarks. Claims 1, 2 and 9-57 are now pending.

Prosecution History

As a preliminary matter, Applicants respectfully submit that by this Response and the previous Amendment dated April 8, #9 2002 (the "First Amendment"), which was filed in response to the first Office Action dated November 7, 2001 (the "First Office Action"), Applicants have earnestly attempted to advance prosecution of this application.

In the second Office Action dated July 2, #11 2002 (the "Second Office Action"), the Examiner summarily maintained the rejections set forth in the First Office Action without specifically addressing the arguments and amendments set forth in the First Amendment. In response, Applicants requested a corrected Office Action to enable Applicants to more fully understand and substantively respond to the Examiner's concerns. However, the third Office Action dated October 17, #13 2002 (the "Third Office Action"), issued pursuant to Applicants' request, still fails to specifically address why the Examiner found the Applicants' previous arguments unpersuasive.

Applicants respectfully submit that a number of the rejections set forth in the Third Office Action were overcome by the First Amendment, the text of which is hereby incorporated in its entirety. However, in the interest of clarity and to expedite prosecution of this application, Applicants will again specifically address such rejections in this Response, in addition to the other objections and rejections set forth in the Third Office Action.

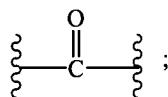
Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 15, 16, 24, 25, 26, 27, 29, 32, 46, 47-49, 51, 54 and 55 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite for the reasons set forth on pages 2-3 of

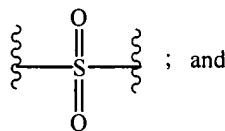
the Office Action dated October 17, 2002. For purpose of clarity, Applicants will address each ground of rejection in the order set forth by the Examiner.

(1) In the First Amendment, claims 15, 25 and 47 were amended to clarify that "Y is a carbon atom, the group O=S, or the group POR". Applicants submit that it would be clear to one of ordinary skill in the art that "=" represents a double covalent bond and that when Y is:

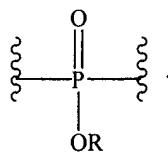
(i) a carbon atom, the following is formed (wherein "~~~" represents the remainder of the molecule):



(ii) the group O=S, the following is formed (wherein "~~~" represents the remainder of the molecule):



(iii) the group POR, the following is formed (wherein "~~~" represents the remainder of the molecule):



With respect to the group POR, it would be clear to one of ordinary skill in the art that P represents phosphorus and O represents oxygen and that, pursuant to the definition of R in claims 15, 25 and 47, R represents a hydrogen atom or alkyl radical having from 1 to 10 carbon atoms (or carboxylated such radical).

Furthermore, in response to the Examiner's concerns regarding the definition of R and R<sub>2</sub>, Applicants note that R is defined as being "a hydrogen atom or alkyl radical having from 1 to 10 carbon atoms (or carboxylated such radical)" and R<sub>2</sub> is defined as being "hydrogen, C<sub>1</sub> to

$C_4$  alkyl, or  $CH_2CO_2H$ ”. Applicants submit that one of ordinary skill in the art would appreciate that, in a given embodiment, both, one or neither of  $R$  and  $R_2$  may be hydrogen.

(2) In the First Amendment, claims 15, 25 and 47 were amended to recite “cation” as opposed to “residue”. Applicants submit that, in view of formula I and the definition of  $R_1$ , it would be clear to one of ordinary skill in the art that  $R_1$  is a cation and, accordingly, these changes do not constitute addition of new matter.

(3) In the First Amendment, claims 16, 26 and 48 were amended to recite that “ $R$  is a hydrogen atom or alkyl radical having from 1 to 10 carbon atoms (or carboxylated such radical) and  $R_1$  is a metal, quaternary ammonium, phosphonium or sulphonium cation”.

Applicants note that these definitions are consistent with the definitions of  $R$  and  $R_1$  throughout the specification and claims and, accordingly, do not constitute the addition of new matter.

(4) Applicants respectfully submit that the terminology “agriculturally acceptable [salt/derivative]” in claims 29, 32 and 51 is not vague to one of ordinary skill in the art when read in view of the entirety of claims 29, 32 and 51. For example, claim 29 recites that the agriculturally acceptable salt of the copolymer of claim 18 “comprises sodium, potassium and/or ammonium ions”. In this way, the terms “agriculturally acceptable” are meant to indicate the suitability of the dispersant salt for its intended purpose and one of ordinary skill in the art would understand the meaning of such terms. For example, one of ordinary skill in the art would appreciate that a particular dispersant salt, which is both sufficiently soluble to function as a dispersion stabilizer and non-toxic, to be agriculturally acceptable.

(5) Applicants respectfully submit that the terminology “will not substantially change” in claims 27 and 49 is not vague when read in view of the specification and the entirety of claims 27 and 49. For example, claim 27 recites “will not substantially change the character of the copolymer”. One of ordinary skill in the art would, in view of the specification (in particular at page 19, lines 9-15) appreciate that the term “character” refers to the dispersant properties of the copolymer. Accordingly, a copolymer according to claim 27 or 49 must retain the advantages of the invention, namely, it must retain its character as an effective dispersant for the applicable materials.

(6) In the First Amendment, claims 33 and 55 were amended to clarify that “the copolymer has a molecular weight in the range of from 1000 to 90000 daltons”. Applicants

submit that one of ordinary skill in the art would appreciate that the terminology "molecular weight", without further specification regarding the type of molecular weight, refers to a weight average molecular weight.

(7) In the First Amendment, claims 24 and 46 were amended to employ proper Markush terminology pursuant to the Examiner's comments. *OK*

(8) In the First Amendment, claims 25 and 26 were amended to recite "...comonomer is of formula..." rather than "...comonomer is selected from the group consisting of structure..." pursuant to the Examiner's comments. *OK*

(9) Applicants submit that claim 54 is not indefinite as to which "derivatives" may be intended when read in view of the specification. To this end, Applicants would like to draw the Examiner's attention to the specification at page 18, lines 5-12, which clearly indicates what is contemplated by the term "derivatives" within the context of the present invention.

Accordingly, in view of the above arguments, Applicants respectfully submit that the pending claims satisfy the second paragraph requirements of §112 and request that this ground of rejection be withdrawn.

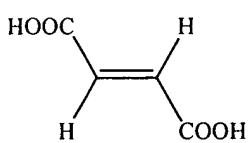
Rejections Under 35 U.S.C. § 112, First Paragraph

Claims 1, 9, 15, 16, 18, 24-26, 33, 37-41, 46-48, 55 and 57 stand rejected under 35 U.S.C. § 112, first paragraph, for containing subject matter which lacks adequate written description. For purpose of clarity, Applicants will address each of the claims in order.

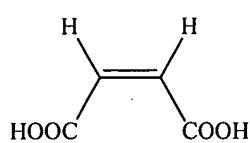
Claim 1 – In the First Amendment, claim 1 was amended to correct several typographical errors. Specifically, claim 1 was amended to recite "pinene" rather than "pipene" and "cyclopentane" rather than "cyclopentene". Support for these amendments may be found in the specification at page 12, lines 18 and 19, respectively.

Claim 9 – In the First Amendment, claims 9, 18 and 37-41 were amended to contain various negative provisos to exclude the dispersants specifically disclosed in Kataoka *et al.* (JP 58-131903). The use of such negative provisos to exclude a species disclosed in the prior art from the scope of a claimed genus is permissible and does not constitute the addition of new matter in violation of the written description requirement of § 112, first paragraph. See, *In re Johnson*, 558 F.2d 1008, 194 U.S.P.Q. 187 (C.C.P.A. 1977). *See also*

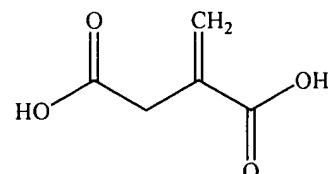
Claim 15 – In the First Amendment, claims 15, 25 and 47 were amended to correct several errors. First, claims 15, 25 and 47 were amended to clarify that “R<sub>3</sub> is hydrogen” (the definition of R<sub>3</sub> was originally inadvertently omitted from such claims). Second, claims 15, 25 and 47 were amended to clarify that “R<sub>2</sub> is hydrogen, C<sub>1</sub> to C<sub>4</sub> alkyl or CH<sub>2</sub>CO<sub>2</sub>H” (the CH<sub>2</sub>CO<sub>2</sub>H moiety was originally inadvertently omitted from such claims). Support for both of these amendments may be found in the specification at page 11, line 22 through page 12, line 6, which provides that preferred first comonomers of the present invention include fumaric acid (in which both R<sub>2</sub> and R<sub>3</sub> are hydrogen), maleic acid (in which both R<sub>2</sub> and R<sub>3</sub> are hydrogen), and itaconic acid (in which R<sub>2</sub> is CH<sub>2</sub>CO<sub>2</sub>H and R<sub>3</sub> is hydrogen).



Fumaric Acid



Maleic Acid



Itaconic Acid

Claim 16 – In the First Amendment, claims 16, 26 and 48 were amended to include the following definitions of R and R<sub>1</sub> (which were originally inadvertently omitted from such claims): “R is a hydrogen atom or alkyl radical having from 1 to 10 carbon atoms (or carboxylated such radical) and R<sub>1</sub> is a metal, quaternary ammonium, phosphonium or sulphonium cation”. As set forth previously, these definitions are consistent with the definitions of R and R<sub>1</sub> throughout the specification and claims and, accordingly, do not constitute the addition of new matter.

Accordingly, in view of the above arguments, Applicants respectfully submit that the pending claims satisfy the first paragraph requirements of §112 and request that this ground of rejection be withdrawn.

#### Objections Under 35 U.S.C. § 132

The First Amendment stands objected to under 35 U.S.C. § 132 for introducing new matter into the disclosure by way of the amendments made to the paragraph beginning at page 14, line 4. Applicants note that in the First Amendment, for purposes of clarity and

consistency, a number of the amendments to the claims set forth above were also made to the paragraph beginning at page 14, line 4. In particular, the following amendments were made: (i) that "Y is a carbon atom, the group O=S, or the group POR"; (ii) that "R<sub>3</sub> is hydrogen"; and (iii) that "R<sub>2</sub> is hydrogen, C<sub>1</sub> to C<sub>4</sub> alkyl or CH<sub>2</sub>CO<sub>2</sub>H". For the reasons set forth above, Applicants respectfully submit that these amendments do not constitute the addition of new matter in violation of § 132 and request that this ground of rejection be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

Claims 9-57 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kataoka *et al.* (JP 58-131903) in view of Fujita *et al.* (JP 62-036302). More specifically, the Examiner is of the opinion that Kataoka discloses an agricultural composition containing a water soluble sodium salt of a sulfonated monolefin and/or ethylenic unsaturated dicarboxylic acid copolymer resin and some water-insoluble materials, such as bentonite and calcium carbonate. However, the Examiner further recognizes that Kataoka does not disclose insoluble materials that are useful for agricultural purposes such as those set forth in pending claim 34. To cure this deficiency, the Examiner relies upon Fujita for disclosing an agricultural composition containing agriculturally useful water insoluble materials, such as insecticides. In view of the foregoing, the Examiner concludes that it would have been obvious to one skilled in the art to use the agriculturally useful water insoluble materials of Fujita in the composition of Kataoka to make the composition of Kataoka more useful and effective for agricultural purposes.

Applicants respectively traverse this ground of rejection and submit that claims 9-57 are not obvious in light of Kataoka in view of Fujita for the following reasons.

1. Applicants submit that it would not have been obvious to one skilled in the art to use the agriculturally useful water insoluble materials of Fujita in the composition of Kataoka. The water insoluble materials of Kataoka (*i.e.*, bentonite and calcium carbonate) are inorganic compositions, while the water insoluble materials of Fujita are typically heteroaromatic organic compounds. One of ordinary skill in the art would recognize that the solubility characteristics of such inorganic and organic materials are quite different and that, accordingly, dispersants for the inorganic insoluble materials of Kataoka would not necessarily be suitable as dispersants for the organic insoluble materials of Fujita. While the inorganic materials often

possess charged surfaces (which can be relatively hydrophilic), the organic materials typically have a uniformly hydrophobic surface. For a dispersant to be useful with such organic materials, it must bind successfully to the hydrophobic surface and rapidly hydrate when water is added in order to form the dispersion. Dispersants commonly used with inorganic materials do not successfully bind to the hydrophobic surface of such organic materials unless derivatised as per the present invention.

Although Kataoka discloses certain specific dispersants which are derivatised in this manner, neither Kataoka nor Fujita contain any suggestion or teaching which would suggest to one of ordinary skill in the art that such derivatised dispersants could be used with the agriculturally useful organic insoluble materials of Fujita with a reasonable expectation of success.

2. Furthermore, the present invention relates to the more general discovery that certain copolymer dispersants possess surprising dispersibility properties when used with organic insoluble materials if such copolymers are derivatised according to the present invention. *See, e.g., Examples 6, 7 and 8 at page 33, lines 1-14 and Examples 11, 12, 13, 22 and 23 at page 34, line 11 through page 35, line 5 and page 37, lines 11-21.* Again, although Kataoka discloses certain specific dispersants which are derivatised in this manner, neither Kataoka nor Fujita read individually or together contain any teaching regarding the importance of such derivatisation, or any suggestion or motivation to derivatise and use the claimed copolymer dispersants in this manner.

3. Nonetheless, Applicants recognize that certain specific dispersants which are derivatised as per the present invention are disclosed in Kataoka. Although, as set forth above, Applicants submit that claims 9-57 are not obvious in light of Kataoka in view of Fujita, Applicants note that claims 9, 18, 37-41 were amended in the First Amendment to exclude the sulphonated copolymers specifically disclosed in Kataoka in order to expedite prosecution and further distinguish the present invention from the cited references.

In conclusion, Applicants respectfully submit that neither Kataoka nor Fujita contain any general teaching or suggestion that dispersants commonly used with inorganic insoluble materials, such as those disclosed in Kataoka, could be used as dispersants for

agriculturally useful organic insoluble materials, such as those disclosed in Fujita, if derivatised as per the present invention. Accordingly, the cited references fail to establish a *prima facie* case of obviousness against amended claims 9-57.

**Second Supplemental Information Disclosure Statement**

As a final matter, Applicants submit herewith a Second Supplemental Information Disclosure Statement citing two references brought to the Applicants' attention during prosecution of the corresponding European application, as well as a further Abstract for JP61236701.

In view of the above amendment and remarks, allowance of claims 1, 2 and 9-57 is respectfully requested. A good faith effort has been made to place this application in condition for allowance. However, should any further issue require attention prior to allowance, the Examiner is requested to contact the undersigned at (206) 622-4900 to resolve the same.

Respectfully submitted,

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Second Supplemental IDS

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